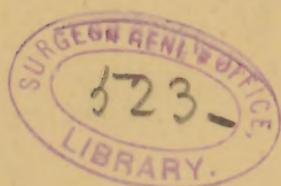


Dock (Geo.)

Flagellate protozoa

\*\*\*





# Dock (Geo.)

[Reprinted from THE MEDICAL NEWS, December 22, 1894.]

## **FLAGELLATE PROTOZOA IN THE FRESHLY PASSED URINE OF A MAN;**

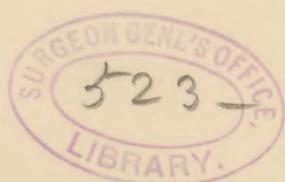
### *Preliminary Note.*

BY GEORGE DOCK, M.D.,

OF ANN ARBOR, MICHIGAN,

PROFESSOR OF MEDICINE IN THE UNIVERSITY OF MICHIGAN.

A. B., twenty-seven years of age, came to me for the treatment of frequent urination. For a number of years the patient lived in Texas, where he had frequent attacks of intermittent fever. About two years ago he had pneumonia, and during convalescence developed hematuria, diagnosticated as malarial. The hematuria finally subsided, but the attacks of frequent urination became more severe and the patient noticed that a whitish cloudy substance was passed with the last few drops of urine, especially at times when micturition was unusually painful and frequent. A few days before I first saw the patient the urine was examined by a colleague, who found pus and blood, and he gave remedies. A few days later I saw the patient. The symptoms were much improved. The urine passed in my presence was clear, acid, with a specific gravity of 1020. It contained numerous whitish specks, about the size of a small pin-head, or slightly larger, somewhat resembling the caseous bits passed in some cases of tuberculosis of the genito-urinary tract, and smaller and less opaque than gleet-threads. (The patient, whose veracity I have no reason for doubting, denies coitus.) Under the microscope these showed pus-corpuscles, epithelial cells, and a number of bodies slightly larger than pus-



cells, of a peculiar hyaline appearance, which struck me as being so remarkable that I immediately began to dictate a note about them. It soon became evident that the bodies were animal parasites, and after a little observation they were identified as belonging to the genus *trichomonas*. In the identification and further study I have received much valuable assistance from my colleague, Dr. J. Playfair McMurrich, Professor of Anatomy in the University of Michigan, to whom I express my thanks.

The bodies are usually from 0.015 – 0.020 mm. long, and from 0.008 – 0.015 mm. wide, of the shape of an apple-seed, oval, ovoid, or irregular. At one end are from two to four flagella; at the other, sometimes, a flagellum-like tail, though this is not constant. At one side, running back from the base of the flagella, is an undulating membrane. This is not always visible. The structure of the body is finely granular, sometimes almost homogeneous, occasionally containing coarser granules resembling cocci. There is an oval nucleus with a long narrow chromatin-body. There is no mouth and no evidence of internal structures. Vacuoles are sometimes present, but there is no contractile vesicle. Besides the ciliary motion of the flagella, and that of the undulating membrane, the organism is able to change its form, to form pseudopods and to move by expanding and contracting the body.

Since the first observation I have made many others and have demonstrated the organisms to a number of colleagues. The fresh urine always contains the organisms, sometimes in large numbers, always in the bits mentioned; these are passed in the last few drops. The condition of the patient is somewhat improved.

The organisms resemble closely *Trichomonas vaginalis* Donné, as described by specialists. (The descriptions in nearly all books are faulty; that of Bütschli, in "Protozoa," in *Bronn's Klassen und Ordnungen*,

Abth. ii, is the best.) Only three other cases in which they have been found in freshly passed urine (not that of women), seem to be recorded; those of Künstler (*Journ. de Méd. de Bordeaux*, 1883-84, xiii, p. 249-250), Marchand (*Centralblatt für Bakteriologie und Parasitenkunde*, Bd. xv, 1894, No. 19-20, p. 709) and Miura (*ibid.*, Bd. xvi, No. 2, p. 67).

In many respects my own case is remarkable and peculiar. I am now carrying on investigations with the organisms, which I purpose to report later, with a consideration of similar and allied observations.





